the synthesis filter bank means (33), the synthesis filter bank means processing the plurality of decimated signals to reconstruct said input signal, **[characterized in that]** wherein, in the encoder, the combining means (23;60;74) so combines the plurality of interpolated subband signals within the encoded signal that said interpolated subband signals occupy the same frequency band and the decoder separates the interpolated subband signals from within said same frequency band.

2. (Amended) Apparatus as claimed in claim 1, **[characterized in that]** wherein the combining means comprises modulation means (74) for using a pair of said interpolated subband signals each to provide a respective one of a first modulated signal and a second modulated signal, the first modulated signal and the second modulated signal having the same frequency but phase displaced by 90 degrees one relative to the other, and combining the modulated signals to provide said encoded signal, said encoded signal having two spectral lobes each comprising information from both of the subband signals;

and the decoder comprises demodulation means (81) for orthogonally demodulating the subband signals extracted from the received encoded signal.

3. (Amended) Apparatus as claimed in claim 2, **[characterized in that]** wherein the modulation means (74) comprises quadrature amplitude modulation means for using each of the interpolated subband signals to modulate a respective one of an in-phase carrier signal and a quadrature carrier signal, the in-phase carrier signal and the quadrature carrier signal having the same frequency but phase-displaced by 90 degrees one relative to the other, and the demodulation means (81) comprises means for demodulating the received encoded signal using in-phase and quadrature carrier signals having the same frequency as those used to encode the encoded signal.

4. (Amended) Apparatus as claimed in claim 1, **[characterized in that]** wherein the analysis filter bank means (21) generates a plurality of pairs of subband signals and the combining means selects fewer than all of said pairs, the synthesis filter bank means (33) compensating for the unused subband signals by substituting zero level signals.

a1 cont.

5. (Amended) Apparatus as claimed in claim 2 [or 3, further **characterized by]** <u>further comprising</u> means (79) for removing one of said spectral lobes from the encoded signal and providing the remaining one of said spectral lobes as said encoded signal.

6. (Amended) Apparatus as claimed in claim 1, **[characterized in that]** <u>wherein</u>, in the encoder, the combining means comprises multiplexing means for time division multiplexing (60) the interpolated subband signals to form said encoded signal, and the extracting means comprises demultiplexing means (71) for time-division demultiplexing the received signal to provide a plurality of received interpolated subband signals corresponding to said interpolated signals in the encoder.

7. (Amended) Apparatus as claimed in claim 1, **[characterized in that]** <u>wherein</u> the encoder comprises means (60) for time-division multiplexing the subband signals and the interpolation means (62) upsamples and interpolates the multiplexed subband signals to form the interpolated subband signals, and, in the decoder, the decimator means (70) downsamples the received signal and the decoder further comprises demultiplexing means (71) for time-division demultiplexing the downsampled received signal to extract the subband signals.

Cont.

8. (Amended) Apparatus as claimed in claim [6 or 7, **characterized in that]** <u>1,</u> <u>wherein</u> the [upsampling] <u>interpolation</u> means upsamples at a rate (P) that corresponds to the number of subbands (N) created by the analysis filter bank means.

9. (Amended) [An encoder] <u>Apparatus</u> as claimed in claim 6, [7 or 8, **characterized in that]** <u>wherein</u> the means (60) for time division multiplexing the subband signals comprises delay means (DB_0, DB_1, ...) for storing a series of values of each subband signal, the delay means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially.

10. (Amended) Apparatus as claimed in claim 6, [7 or 8, **characterized in that]** <u>wherein</u> in the encoder, the means (60) for time division multiplexing the subband signals comprises first delay means (60A) and second delay means (60B) each for accepting a series

of values of each subband signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially, the arrangement being such that, when the first delay means is in its first state accepting values of the subband signals, the second delay means is in its second state and outputting the subband signal values previously stored therein, and, in the decoder, the means (71) for time division demultiplexing the subband signals comprises first delay means (71A) and second delay means (71B) each for accepting a series of values of the received signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the received signal serially and a second state where the delay means output previously stored values in parallel, the arrangement being such that, when the first delay means is in its first state accepting values of the received signal, the second delay means is in its second state and outputting the subband signal values previously stored therein.

a3 Cont

11. (Amended) An encoder (12) for encoding a digital input signal (I) for transmission or storage comprising analysis filter bank means (21) for analyzing the input signal (I) into a plurality of subband signals, each subband centered at a respective one of a corresponding plurality of frequencies, interpolation means (22) for upsampling and interpolating each subband signal to provide a plurality of interpolated subband signals all occupying the same frequency band; and combining means (23;60;74) for combining the interpolated subband signals to form the encoded signal for transmission or storage, **[characterized in that]** wherein the combining means (23;60;74) so combines the plurality of interpolated subband signals within the encoded signal that said interpolated subband signals occupy the same frequency band.

12. (Amended) An encoder as claimed in claim 11, **[characterized in that]** wherein the combining means comprises modulation means (74) for using a pair of said interpolated subband signals each to provide a respective one of a first modulated signal and a second modulated signal, the first modulated signal and the second modulated signal having the same frequency but phase displaced by 90 degrees one relative to the other, and combining the modulated signals to provide said encoded signal, said encoded signal having two spectral lobes, each comprising information from both of the interpolated subband signals.

13. (Amended) An encoder as claimed in claim 12, **[characterized in that]** wherein the modulation means (74) comprises quadrature amplitude modulation means for using each of the interpolated subband signals to modulate a respective one of an in-phase carrier signal (f_I) and a quadrature carrier signal (f_0), the in-phase carrier signal and the quadrature carrier signal having the same frequency (f_0) but phase-displaced by 90 degrees one relative to the other,

14. (Amended) An encoder as claimed in claim 11, **[characterized in that]** wherein the analysis filter bank means (21) generates a plurality of pairs of subband signals and the modulation means (74) modulates a selection of said pairs.

A1 Cont.

15. (Amended) An encoder as claimed in [any one of claims 11 to 14, further **characterized by]** claim 12, further comprising means (79) for removing one of said spectral lobes from the encoded signal and providing the remaining one of said spectral lobes as said encoded signal.

16. (Amended) An encoder as claimed in claim 11, **[characterized in that]** wherein the combining means comprises multiplexing means (60) for time division multiplexing the interpolated subband signals to form said encoded signal.

17. (Amended) An encoder as claimed in claim [15, **characterized by]** 11, further comprising means (60) for time-division multiplexing the subband signals and wherein the interpolation means upsamples and interpolates the multiplexed subband signals to form the interpolated subband signals.

18. (Amended) An encoder as claimed in claim [15, 16 or 17, **characterized in that]** 11, wherein the interpolation means upsamples at a rate (P) dependent upon the number of subbands (N) created by the analysis filter bank means.

19. (Amended) An encoder as claimed in claim [15, 16 or 17, **characterized in that]** 11, wherein the means (60) for time division multiplexing the subband signals comprises delay means (DB_0, DB_1, ...) for storing a series of values of each subband signal, the delay

means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially.

20. (Amended) An encoder as claimed in claim [15, 16 or 17, **characterized in that**] 16, wherein the means (60) for time division multiplexing the subband signals comprises first delay means (60A) and second delay means (60B) each for accepting a series of values of each subband signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially, the arrangement being such that, when the first delay means is in its first state accepting values of the subband signals, the second delay means is in its second state and outputting the subband signal values previously stored therein.

a1 cont.

21. A decoder for decoding digital signals from an encoder as claimed in claim 11, comprising:

[(iii)] means (31) for extracting from the same frequency band said plurality of interpolated subband signals in the received encoded signal; and

[(iv)] synthesis filter bank means (33) complementary and substantially inverse to the analysis filter means used in encoding the received signal for processing the extracted pair of interpolated subband signals to produce a decoded signal (I′) corresponding to the input signal (I).

22. (Amended) A decoder as claimed in claim 21, for decoding an encoded signal encoded by the encoder of claim 12 and further [**characterized by**] comprising demodulation means (81) for orthogonally demodulating the received signal to extract the subband signals from the received signal.

23. (Amended) A decoder as claimed in claim 22, for decoding an encoded signal encoded by the encoder of claim 13, and [**characterized in that**] wherein the demodulation means (81) comprises means for quadrature amplitude demodulating the received encoded

signal using in-phase and quadrature carrier signals having the same frequency as those used to encode the encoded signal.

24. (Amended) A decoder as claimed in claim [22] <u>21</u>, for decoding an encoded signal encoded by the encoder of claim 14, and [**characterized in that**] <u>wherein</u> the synthesis filter bank <u>means</u> (33) is arranged to compensate for [the] unused subband signals by substituting zero level signals.

25. (Amended) A decoder as claimed in claim 21, [**characterized in that**] <u>wherein</u> the extracting means comprises demultiplexing means (71) for time-division demultiplexing the [downsampled signal] <u>decimated signals</u> to provide a plurality of received interpolated signals corresponding to said interpolated signals in the encoder.

A5 Cont.

26. (Amended) A decoder as claimed in claim [25, **characterized in that**] <u>21, wherein</u> the decimator (70) [downsamples] <u>decimates</u> the received signal and the decoder further comprises demultiplexing means (71) for time-division demultiplexing the [downsampled] <u>decimated</u> received signal to extract the subband signals.

27. (Amended) A decoder as claimed in claim [25 or 26, **characterized in that** the decoder input means downsamples] <u>21, wherein the decimator means (70) decimates</u> at a rate (P) corresponding to the upsampling rate (P) used by the encoder to upsample the subband signals.

28. (Amended) A decoder as claimed in claim 25, [26 or 27, **characterized in that**] <u>wherein</u> the means (71) for demultiplexing the received signal to extract the subband signals comprises delay means (DB_0, DB_1, ...) for storing a series of values of said received signal, the delay means being operable alternately between a first state wherein the delay means accepts values of the received signal serially and a second state wherein the delay means outputs previously stored values in parallel as said subband signals.

29. (Amended) A decoder as claimed in claim 25, [26 or 27, **characterized in that**] <u>wherein</u> the means (71) for time division demultiplexing the subband signals comprises first

delay means (DB'_0) and second delay means (DB'_1) each for accepting a series of values of the received signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the received signal serially and a second state wherein the delay means outputs previously stored values in parallel, the arrangement being such that, when the first delay means is in its first state accepting values of the received signal, the second delay means is in its second state and outputting the subband signal values previously stored therein.

30. (Amended) A method of encoding a digital input signal for transmission or storage and decoding such encoded signal to reconstruct the input signal, the encoding including the steps of:

(i) using an analysis filter bank means (21) for analyzing the input signal (I) into a plurality of subband signals (S_0 ... S_{N-1}), each subband centered at a respective one of a corresponding plurality of frequencies;

(ii) upsampling and interpolating each subband signal to provide a plurality of interpolated subband signals each occupying the same frequency band as the others; and

(iii) combining the interpolated subband signals to form the encoded signal (E_0) for transmission or storage;

the decoding comprising the steps of:

(iv) extracting the interpolated subband signals from the received encoded signal;

(v) decimating each of the plurality of extracted interpolated subband signals to remove an equivalent number of samples to the interpolated values; and

(vi) using synthesis filter bank means (33) complementary to said analysis filter bank means (21), processing the plurality of decimated subband signals to reconstruct said input signal, **[characterized in that]** <u>wherein</u>, during encoding, the plurality of interpolated subband signals are so combined within the encoded signal that said interpolated subband signals occupy the same frequency band.

31. (Amended) A method as claimed in claim 30, **[characterized in that]** <u>wherein</u> the combining step uses a pair of interpolated signals each to provide a respective one of a first modulated signal and a second modulated signal, the first modulated signal and the second modulated signal having the same frequency but phase-displaced by 90 degrees one relative

a' Cont.

to the other, and combines the modulated signals to provide said encoded signal (E_0), said encoded signal having two spectral lobes each comprising information from both of the interpolated signals, and the decoder extracts the modulated signals from the received encoded signal and demodulates the extracted modulated signals to produce the received interpolated signals.

32. (Amended) A method as claimed in claim 31, **[characterized in that]** <u>wherein</u> the modulation comprises quadrature amplitude modulation (QAM) using each of the interpolated subband signals to modulate a respective one of an in-phase carrier signal (f_I) and a quadrature carrier signal (f_Q), the in-phase carrier signal and the quadrature carrier signal having the same frequency but phase-displaced by 90 degrees one relative to the other, and the demodulation step at the decoder comprises the step of quadrature amplitude demodulating the received encoded signal using in-phase and quadrature carrier signals having the same frequency as those used to encode the encoded signal.

Cont.

33. (Amended) A method as claimed in claim 30, **[characterized in that]** <u>wherein</u> a plurality of pairs of subband signals (S_0,S_1,S_2,S_3) are generated but only a selection (S_0,S_1) of said pairs are modulated, and the processing by the synthesis filter means compensates for the unused subband signals by substituting zero level signals.

34. (Amended) A method as claimed in claim 31 [or 32], further **[characterized by]** <u>comprising</u> the step of removing one of said spectral lobes from the encoded signal.

35. (Amended) A method as claimed in claim 30, **[characterized in that]** <u>wherein</u> the interpolated signals are combined using time-division multiplexing and the extracting step time-division demultiplexes the received signal to extract the received interpolated signals.

36. (Amended) A method as claimed in claim [35, **characterized in that]** <u>30, wherein</u> the step of upsampling during encoding is applied to the multiplexed interpolated signals and the step of downsampling during decoding is applied to the received signal before demultiplexing.

37. (Amended) A method as claimed in claim [35 or 36, **characterized in that**] <u>30, wherein</u> the upsampling during encoding is at a rate corresponding to the number of subbands created by the analysis filter bank means.

38. (Amended) A method as claimed in claim 35, [36 or 37, **characterized in that**] <u>wherein</u> the time division multiplexing of the interpolated signals comprises the steps of alternately storing a series of values of each subband signal, in parallel, in delay means (DB_0, DB_1, ...) and outputting serially from the delay means values previously stored therein, and the demultiplexing of the received signal to extract the subband signals comprises the steps of alternately storing a series of values of said received signal serially in delay means (DB'_0, DB'_1, ...) and outputting previously stored values in parallel as said subband signals.

G1 Cont.

39. (Amended) A method as claimed in claim 35, [36 or 37, **characterized in that**] <u>wherein</u> the step of multiplexing the subband signals uses first delay means (60a) and second delay means (60b) each for accepting a series of values of each subband signal, each delay means being alternately loaded with values of the subband signals in parallel and outputting previously stored values serially, the arrangement being such that, during the step of loading each of the delay means with values of the subband signals, the other delay means is outputting the subband signal values previously stored therein, and the step of time division demultiplexing of the subband signals uses first delay means (71A) and second delay means (71B) each for accepting a series of values of the received signal, each delay means being alternately loaded with values of the received signal serially and outputting previously stored values in parallel, the arrangement being such that, when each of the delay means is being loaded with values of the received signal, the other of the delay means is outputting the subband signal values previously stored therein.

40. (Amended) A method of encoding a digital input signal for transmission or storage comprising the steps of:

(i) using an analysis filter bank means (21), analyzing the input signal into a plurality of subband signals, each subband centered at a respective one of a corresponding plurality of frequencies;

(ii) upsampling and interpolating each subband signal to provide a plurality of interpolated signals each occupying the same frequency band as the others; and

(iii) combining the interpolated subband signals to form the encoded signal for transmission or storage, [**characterized in that**] wherein the plurality of subband signals are so combined within the encoded signal that said interpolated subband signals occupy the same frequency band.

41. (Amended) An encoding method as claimed in claim 40, [**characterized in that**] wherein the combining step uses said pair of interpolated subband signals each to provide a respective one of a first modulated signal and a second modulated signal, the first modulated signal and the second modulated signal having the same frequency but phase displaced by 90 degrees one relative to the other, and combines the modulated signals to provide said encoded signal, such that the encoded signal has two spectral lobes, each comprising information from both of the interpolated subband signals.

42. (Amended) An encoding method as claimed in claim 41, [**characterized in that**] wherein the combining step uses each of the interpolated subband signals for quadrature amplitude modulation of a respective one of an in-phase carrier signal (f_I) and a quadrature carrier signal (f_Q), the in-phase carrier signal and the quadrature carrier signal having the same frequency but phase-displaced by 90 degrees one relative to the other.

43. (Amended) An encoding method as claimed in claim 40, [**characterized in that**] wherein a plurality of pairs of subband signals (S_0,S_1,S_2,S_3) are generated using the analysis filter means but only a selection (S_0,S_1) of said pairs are modulated.

44. (Amended) An encoding method as claimed in claim 41, [42 or 43, further **characterized by**] further comprising the step of removing one of said spectral lobes from the encoded signal.

45. (Amended) An encoding method as claimed in claim 40, [**characterized in that**] wherein the interpolated subband signals are combined using time-division multiplexing.

Cont.

46. (Amended) An encoding method as claimed in claim [45, **characterized in that** the] 40, further comprising the step of multiplexing the subband signals before the step of upsampling is performed [after the step of multiplexing the subband signals] and interpolating of the subband signals.

47. (Amended) An encoding method as claimed in claim [45 or 46, **characterized in that**] 40, wherein the upsampling is at a rate (P) corresponding to the number of subbands (N) provided by the analysis filter bank means.

48. (Amended) An encoding method as claimed in claim 45, [46 or 47, **characterized in that**] wherein the multiplexing of the subband signals uses delay means (DB_0, DB_1, ...) for storing a series of values of each subband signal, the values being stored in the delay means in parallel and, alternately, previously stored values outputted from the delay means serially.

a' Cont.

49. (Amended) An encoding method as claimed in claim 45, [46 or 47, **characterized in that**] wherein the step of multiplexing the subband signals uses first delay means (60A) and second delay means (60B) each for accepting a series of values of each subband signal, each delay means being loaded with values of the subband signals in parallel and, alternately, outputting previously stored values serially, the arrangement being such that, during loading of each of the delay means with values of the subband signals, the other delay means is outputting the subband signal values previously stored therein.

50. (Amended) A method of decoding an encoded signal encoded by the encoder method of claim 40 and comprising a plurality of interpolated subband signals occupying the same frequency band, comprising the steps of:

[(iii)] extracting said [pair] plurality of interpolated signals from the same frequency band and from a received encoded signal (E'_0); and

decimating the extracted plurality of interpolated signals to remove an equivalent number of samples as those interpolated;

[(iv)] using synthesis filter bank means (33) complementary and substantially inverse to the analysis filter bank means used during encoding, to process the

extracted [pair] plurality of received interpolated signals to produce a decoded signal (I′) corresponding to the input signal (I).

51. (Amended) A decoding method as claimed in claim 50, for decoding an encoded signal encoded by the encoding method of claim 41 and further **[characterized by]** comprising the step of orthogonally demodulating the received signal to extract the interpolated signals.

52. (Amended) A decoding method as claimed in claim 51, for decoding an encoded signal encoded by the encoding method of claim 42, **[characterized in that]** wherein the demodulating of the received encoded signal comprises quadrature amplitude demodulation using in-phase and quadrature carrier signals having the same frequency as those used to encode the encoded signal.

53. (Amended) A decoding method as claimed in claim 50, for decoding an encoded signal encoded by the [encoder] encoding method of claim 43, and **[characterized in that]** wherein the processing using the synthesis filter bank means is arranged to compensate for unused subband signals by substituting zero level signals.

54. (Amended) A decoding method as claimed in claim 50, **[characterized in that]** for decoding an encoded signal encoded by the encoding method of claim 45, wherein the interpolated signals are [combined using time-division multiplexing] demultiplexed before the decimation step.

55. (Amended) A decoding method as claimed in claim [54, **characterized in that** the received encoded signal is downsampled before demultiplexing] 50, for decoding an encoded signal encoded by the encoding method of claim 46, further comprising the step of demultiplexing the interpolated subband signals after the decimation step has been performed.

56. (Amended) A decoding method as claimed in claim [54 or 55, **characterized in that]** 50, wherein the [downsampling] decimation is at a rate (P) corresponding to the upsampling rate (P) used during encoding.

57. (Amended) A decoding method as claimed in claim 54, [55 or 56, **characterized in that]** <u>wherein</u> the step of demultiplexing the received signal to extract the interpolated signals comprises the steps of alternately storing a series of values of said received signal serially in delay means (DB'_0, DB'_1 ...) and outputting previously stored values in parallel as said interpolated signals.

a1 Cont.

58. (Amended) A decoding method as claimed in claim 54, [55 or 56, **characterized in that]** <u>wherein</u> the step of demultiplexing the interpolated signals uses first delay means (71A) and second delay means (71B) each for accepting a series of values of the received signal, each delay means having values of the received signal loaded therein serially and, alternately, outputting previously stored values in parallel, the arrangement being such that, when the values of the received signal are being loaded into one of the delay means, the interpolated signal values previously stored in the other delay means are being outputted.

59. (New) Apparatus as claimed in claim 7, wherein the interpolation means upsamples at a rate (P) that corresponds to the number of subbands (N) created by the analysis filter bank means.

60. (New) Apparatus as claimed in claim 7 wherein the means (60) for time division multiplexing the subband signals comprises delay means (DB_0, DB_1, ...) for storing a series of values of each subband signal, the delay means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially.

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61. (New) Apparatus as claimed in claim 7, wherein in the encoder, the means (60) for time division multiplexing the subband signals comprises first delay means (60A) and second delay means (60B) each for accepting a series of values of each subband signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially, the arrangement being such that, when the first delay means is in its first state accepting values of the subband signals, the second delay means is in its second state and outputting the subband signal values previously stored therein, and, in the

decoder, the means (71) for time division demultiplexing the subband signals comprises first delay means (71A) and second delay means (71B) each for accepting a series of values of the received signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the received signal serially and a second state where the delay means output previously stored values in parallel, the arrangement being such that, when the first delay means is in its first state accepting values of the received signal, the second delay means is in its second state and outputting the subband signal values previously stored therein.

62. (New) An encoder as claimed in claim 17, wherein the interpolation means upsamples at a rate (P) dependent upon the number of subbands (N) created by the analysis filter bank means.

63. (New) An encoder as claimed in claim 17, wherein the means (60) for time division multiplexing the subband signals comprises delay means (DB_0, DB_1, ...) for storing a series of values of each subband signal, the delay means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially.

64. (New) An encoder as claimed in claim 17, wherein the means (60) for time division multiplexing the subband signals comprises first delay means (60A) and second delay means (60B) each for accepting a series of values of each subband signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the subband signals in parallel and a second state wherein the delay means outputs previously stored values serially, the arrangement being such that, when the first delay means is in its first state accepting values of the subband signals, the second delay means is in its second state and outputting the subband signal values previously stored therein.

65. (New) A decoder as claimed in claim 26, wherein the decimator means (70) decimates at a rate (P) corresponding to the upsampling rate (P) used by the encoder to upsample the subband signals.

66. (New) A decoder as claimed in claim 26, wherein the means (71) for demultiplexing the received signal to extract the subband signals comprises delay means (DB_0, DB_1, ...) for storing a series of values of said received signal, the delay means being operable alternately between a first state wherein the delay means accepts values of the received signal serially and a second state wherein the delay means outputs previously stored values in parallel as said subband signals.

67. (New) A decoder as claimed in claim 26, wherein the means (71) for time division demultiplexing the subband signals comprises first delay means (DB'_0) and second delay means (DB'_1) each for accepting a series of values of the received signal, each delay means being operable alternately between a first state wherein the delay means accepts values of the received signal serially and a second state wherein the delay means outputs previously stored values in parallel, the arrangement being such that, when the first delay means is in its first state accepting values of the received signal, the second delay means is in its second state and outputting the subband signal values previously stored therein.

68. (New) A method as claimed in claim 36, wherein the upsampling during encoding is at a rate corresponding to the number of subbands created by the analysis filter bank means.

69. (New) A method as claimed in claim 36, wherein the time division multiplexing of the interpolated signals comprises the steps of alternately storing a series of values of each subband signal, in parallel, in delay means (DB_0, DB_1, ...) and outputting serially from the delay means values previously stored therein, and the demultiplexing of the received signal to extract the subband signals comprises the steps of alternately storing a series of values of said received signal serially in delay means (DB'_0, DB'_1, ...) and outputting previously stored values in parallel as said subband signals.

70. (New) A method as claimed in claim 36 wherein the step of multiplexing the subband signals uses first delay means (60a) and second delay means (60b) each for accepting a series of values of each subband signal, each delay means being alternately loaded with values of the subband signals in parallel and outputting previously stored values serially, the arrangement being such that, during the step of loading each of the delay means with values

of the subband signals, the other delay means is outputting the subband signal values previously stored therein, and the step of time division demultiplexing of the subband signals uses first delay means (71A) and second delay means (71B) each for accepting a series of values of the received signal, each delay means being alternately loaded with values of the received signal serially and outputting previously stored values in parallel, the arrangement being such that, when each of the delay means is being loaded with values of the received signal, the other of the delay means is outputting the subband signal values previously stored therein.

71. (New) An encoding method as claimed in claim 46 wherein the upsampling is at a rate (P) corresponding to the number of subbands (N) provided by the analysis filter bank means.

72. (New) An encoding method as claimed in claim 46, wherein the multiplexing of the subband signals uses delay means (DB_0, DB_1, ...) for storing a series of values of each subband signal, the values being stored in the delay means in parallel and, alternately, previously stored values outputted from the delay means serially.

73. (New) An encoding method as claimed in claim 46, wherein the step of multiplexing the subband signals uses first delay means (60A) and second delay means (60B) each for accepting a series of values of each subband signal, each delay means being loaded with values of the subband signals in parallel and, alternately, outputting previously stored values serially, the arrangement being such that, during loading of each of the delay means with values of the subband signals, the other delay means is outputting the subband signal values previously stored therein.

74. (New) A decoding method as claimed in claim 55, wherein the decimation is at a rate (P) corresponding to the upsampling rate (P) used during encoding.

75. (New) A decoding method as claimed in claim 55, wherein the step of demultiplexing the received signal to extract the interpolated signals comprises the steps of alternately storing